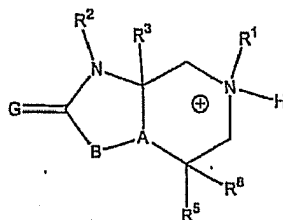


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

A is CH or nitrogen;

B is $-\text{CH}_2-$, $-\text{CHF}-$, $-\text{CF}_2-$, NR_4 or O, with the proviso that when A is N, B is $-\text{CH}_2-$, $-\text{CHF}-$ or $-\text{CF}_2-$;

G is oxygen or $=\text{N}-\text{CN}$,

R_1 is hydrogen or C_{1-6} alkyl;

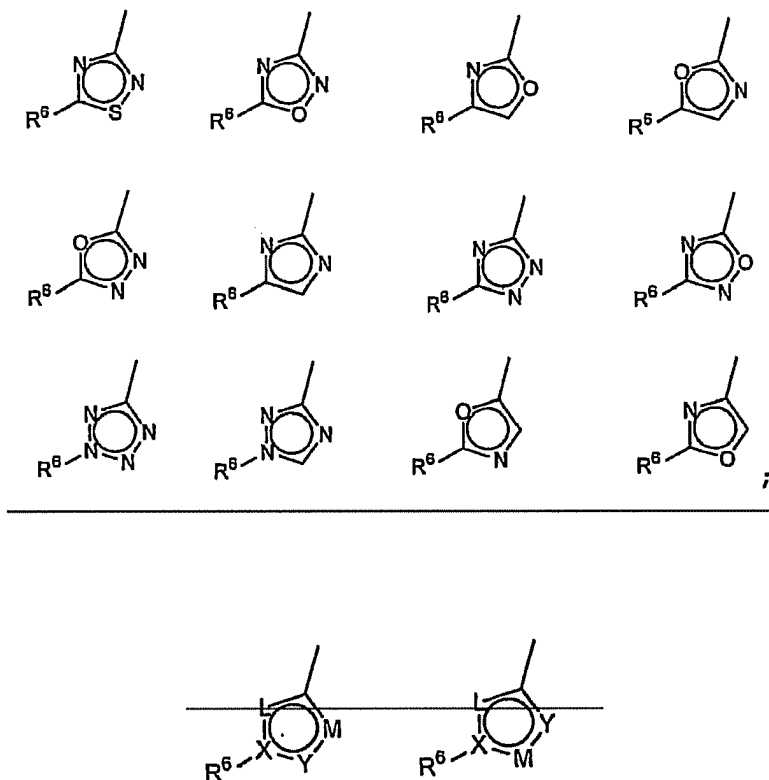
R_2 is C_{1-8} alkyl, $-\text{CH}_2$ -aryl, or a $-\text{CH}_2$ -substituted hetero cycle, hydrogen; C_4 -alkyl optionally substituted

with C_{1-6} alkoxy or halogen; aralkyl, a $-\text{CH}_2$ -heterocycle or a $-\text{CH}_2$ - C_5 -cycloalkyl ring each of which may be optionally substituted with one or more of halo, hydroxyl, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-8} alkoxy, C_{1-6} haloalkoxy, C_{2-6} alkenyl, C_{2-6} haloalkenyl, C_{2-6} alkynyl or C_{2-6} haloalkynyl;

R_3 is hydrogen; cyclobutyl, cyclopropyl, methyl, ethyl, isopropyl, butyl, sec-butyl a cyclic alkyl radical containing from 3-6 carbon atoms or a C_4 - C_6 alkyl;

R_4 is hydrogen or lower alkyl;

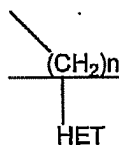
R_5 is a 5-membered unsaturated heterocyclic ring having one of the following structures:



R₆ is methyl, aralkyl, arylamino, aralkyl substituted by one or more halo and having a methylene group linking the aryl to the unsaturated 5-membered ring, aralkyl substituted by one or more halo and having an ethylene group linking the aryl to the unsaturated 5-membered ring; where L and M are independently O or N (or NH where the circumstances require) with the proviso that both of L and M cannot be O; Y is S, CH, O or N (or NH where the circumstances require); X is C or N; and

R₆ is lower alkyl; hydrogen; arylamino optionally substituted with one or more of halo, hydroxy, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₄₋₆ alkoxy, C₄₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl; aralkyl optionally substituted with one or more of halo, hydroxy, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₄₋₆ alkoxy, C₄₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl; or a group of formula:

Application No. 10/581,833
Amdt. dated 14 October 2009
Reply to Office Action of 24 June 2009



~~wherein n is an integer in the range from 1 to 4 and HET is a heterocyclic group optionally substituted with one or more of halo, hydroxy, C₁₋₆-alkyl, C₁₋₆ haloalkyl, C₁₋₆-alkoxy, C₄₋₆ haloalkoxy, C₂₋₆-alkenyl, C₂₋₆ haloalkenyl, C₂₋₆-alkynyl or C₂₋₆ haloalkynyl;~~

or R₅ may also be C₂-C₄-aralkyl, -CH₂-O-R₇ where R₇ is C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₂-C₄ aralkyl which groups may be optionally substituted with fluoro or hydroxy; and

R₈ is hydrogen phenyl or halo-substituted phenyl or aryl ~~(optionally substituted with one or more of halo, hydroxyl, C₁₋₆-alkyl, C₁₋₆ haloalkyl, C₄₋₆ alkoxy, C₁₋₆ haloalkoxy, C₂₋₆-alkenyl, C₂₋₆ haloalkenyl, C₂₋₆-alkynyl or C₂₋₆ haloalkynyl);~~

with the proviso that when either R₃ or R₈ is not hydrogen, the other is hydrogen.

2. (cancel)

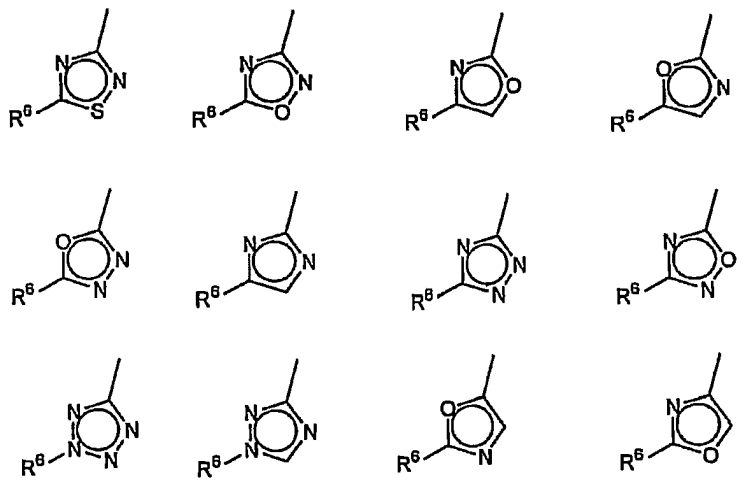
3. (currently amended) A compound according to claim 12, wherein

R_1 is H;

R_2 is $-\text{CH}_2\text{-aryl}$ optionally substituted with one or more of halo, hydroxy, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-8} alkoxy, C_{1-6} haloalkoxy, C_{2-6} alkenyl, C_{2-6} haloalkenyl, C_{2-6} alkynyl or C_{2-6} haloalkynyl;

R_3 is hydrogen or cyclobutyl;

R_5 is one of the following 5-membered unsaturated heterocyclic ring structures:



R_6 is phenyl, phenylamino substituted by one or more halo, phenylmethyl substituted by one or more halo, or phenethyl substituted by one or more halo; and

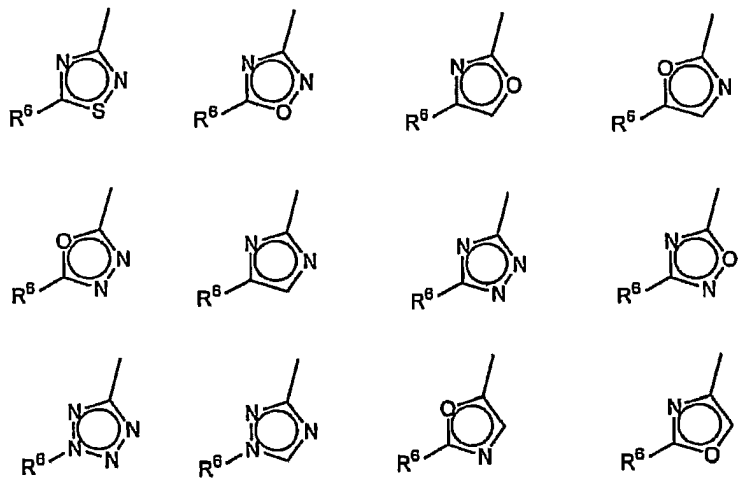
R_8 is hydrogen or a fluoro-substituted phenyl.

4. (currently amended) A compound according to claim 3, wherein

R_2 is $-\text{CH}_2-\text{C}_6\text{H}_5$ or $-\text{CH}_2$ -heterocyclic aryl each of which may be optionally substituted with one or more of halo, hydroxy, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-8} alkoxy, C_{1-6} haloalkoxy, C_{2-6} alkenyl, C_{2-6} haloalkenyl, C_{2-6} alkynyl or C_{2-6} haloalkynyl;

R_3 is H;

R_5 is one of the following 5-membered unsaturated heterocyclic ring structures:



R_6 is a meta chloro-substituted phenylamino, a meta chloro-substituted phenylmethy or a meta chloro-substituted phenethyl; and

R_8 is 3,5-difluorophenyl.

5. (currently amended) A compound according to claim 1, wherein

A is CH;

B is -CH₂-;

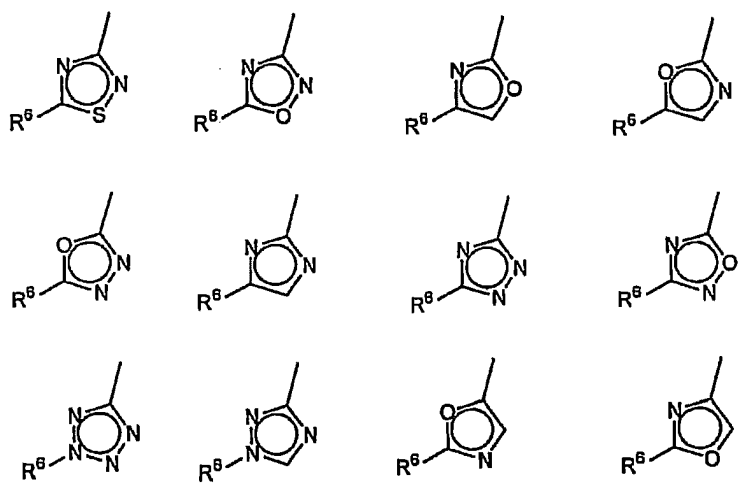
G is oxygen;

R₁ is hydrogen;

R₂ is C₁₋₈ alkyl or -CH₂-aryl (optionally substituted by one or more of halo, hydroxy, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₈ alkoxy, C₁₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl);

R₃ is cyclobutyl or H, and;

R₅ is one of the following 5-membered unsaturated heterocyclic ring structures:



~~R₆ is methyl, aralkyl, arylamino, aralkyl substituted by one or more halo and having a methylene group linking the aryl to the unsaturated 5-membered ring, aralkyl substituted by one or more halo and having an ethylene group linking the aryl to the unsaturated 5-membered ring; and~~

~~R₈ is H or phenyl (optionally substituted with halo).~~

6. (currently amended) A compound according to claim 1, in which A is CH;

B is O;

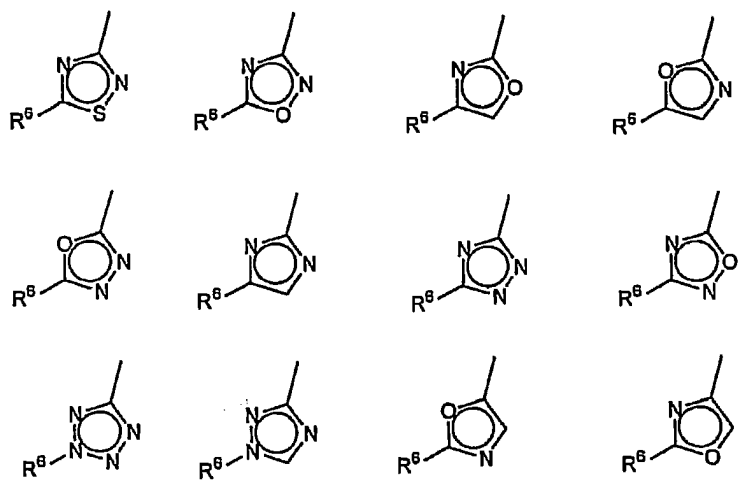
G is oxygen;

R₁ is hydrogen;

R₂ is C₁₋₈ alkyl, -CH₂-aryl (optionally substituted by one or more of halo, hydroxy, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₈ alkoxy, C₁₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl);

R₃ is cyclobutyl or H; and

R₅ is -CH₂-O-CH₃, -CH₂-O-CH₂-CH₂-C₆H₅ or one of the following 5-membered unsaturated heterocyclic ring structures:



~~R₆ is methyl, aralkyl, arylamino, aralkyl substituted by one or more halo and having a methylene group linking the aryl to the unsaturated 5-membered ring, aralkyl substituted by one or more halo and having an ethylene group linking the aryl to the unsaturated 5-membered ring; and~~

~~R₈ is H or phenyl (optionally substituted with halo).~~

7. (currently amended) A compound according to claim 1, wherein .

A is CH; B is NH;

G is oxygen;

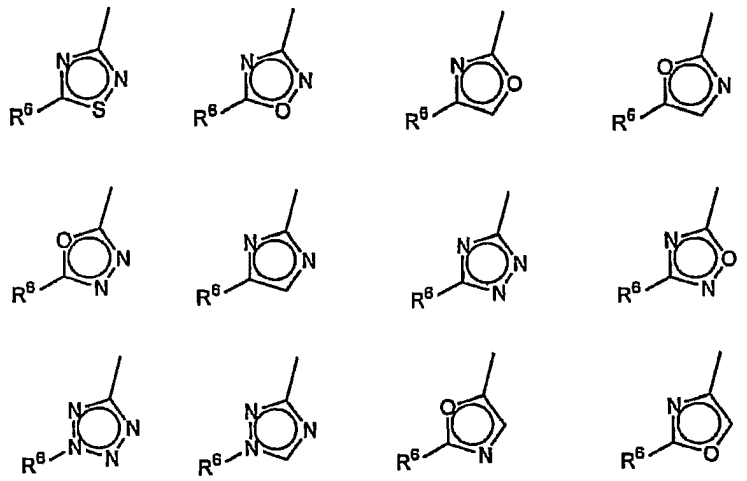
R₁ is hydrogen;

R₂ is C₁₋₈ alkyl, -CH₂-aryl, a -CH₂-heterocyclic group or a -CH₂-substituted C₅ cycloalkyl (optionally substituted by one or more of halo, hydroxy, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₈ alkoxy, C₁₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl);

R₃ is cyclobutyl or H; and

~~R₄ is hydrogen;~~

R₅ is -CH₂-O-CH₃, -CH₂-O-CH₂-CH₂-C₆H₅ or one of the following 5-membered unsaturated heterocyclic ring structures:



~~R₆ is methyl, aralkyl, arylamino, aralkyl substituted by one or more halo and having a methylene group linking the aryl to the unsaturated 5-membered ring, aralkyl substituted by one or more halo and having an ethylene group linking the aryl to the unsaturated 5-membered ring; and~~

~~R₈ is H or phenyl (optionally substituted with halo).~~

8. (currently amended) A compound according to claim 1, wherein

A is N;

B is -CH₂-;

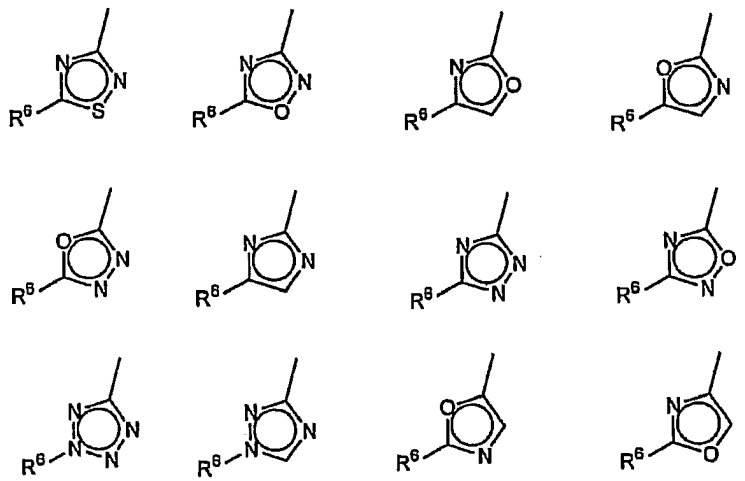
G is oxygen;

R₁ is hydrogen;

R₂ is C₁₋₈ alkyl, -CH₂-aryl, a -CH₂-heterocyclic group or a -CH₂-substituted C₅ cycloalkyl (optionally substituted one or more of halo, hydroxy, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₈ alkoxy, C₁₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl);

R₃ is cyclobutyl or H;

R₅ is one of the following 5-membered unsaturated heterocyclic ring structures:



~~R₆ is methyl, aralkyl, arylamino, aralkyl substituted by one or more halo and having a methylene group linking the aryl to the unsaturated 5-membered ring, aralkyl, substituted by one or more halo and having an ethylene group linking the aryl to the unsaturated 5-membered ring; and~~

R₈ is H or phenyl (optionally substituted with halo).

9. (currently amended) A compound according to claim 1, wherein

A is N;

B is -CH₂-;

G is oxygen;

R₁ is hydrogen;

R₂ is C₁₋₈ alkyl -CH₂-aryl, a -CH₂-heterocyclic group or a -CH₂-substituted C₅ cycloalkyl (optionally substituted by one or more of halo, hydroxy, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₈ alkoxy, C₁₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl);

R₃ is cyclobutyl or H; and

R₅ is -CH₂-O-CH₃; and

~~R₈ is H or phenyl (optionally substituted with halo).~~

10. (currently amended) A compound according to claim 1, wherein

A is N;

B is -CH₂-;

~~G is oxygen;~~

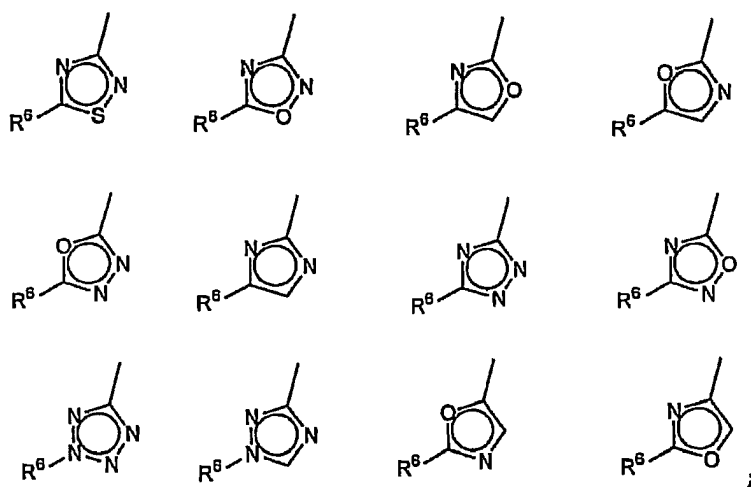
R₁ is hydrogen;

~~R₂ is C₄₋₁₀ alkyl, -CH₂-aryl or a -CH₂-heterocyclic group, (optionally substituted by one or more of halo, hydroxy, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₄₋₈ alkoxy, C₄₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl);~~

R₃ is hydrogen or cyclobutyl;

R₅ is one of the following 5-membered unsaturated heterocyclic ring structures:

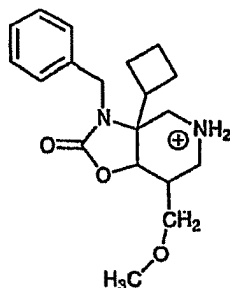
Application No. 10/581,833
 Amdt. dated 14 October 2009
 Reply to Office Action of 24 June 2009



~~R_6 is methyl, aralkyl, arylamino, aralkyl substituted by one or more halo and having a methylene group linking the aryl to the unsaturated 5-membered ring, aralkyl substituted by one or more halo and having an ethylene group linking the aryl to the unsaturated 5-membered ring; and~~

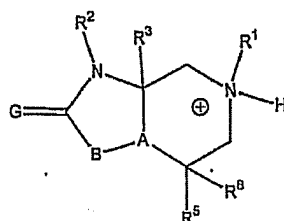
R_8 is phenyl, 3,5-difluorophenyl or H.

11. (original) A compound according to claim 1, having the formula:



12. (previously presented) A pharmaceutical composition comprising a therapeutically effective amount of the compound of claim 1 .
13. (cancel)
14. (currently amended) A method of manufacturing a medicament for the treatment of known symptoms related to a reduction of the cognitive functions of the brain of mammals disorders caused by the malfunction of the acetylcholine or muscarinic systems comprising the step of placing the compound of claim 1 into a pharmaceutical composition in a unit dosage form.
15. (currently amended) The method of claim 14, wherein the treatment disorder is for Alzheimer's disease.
- 16.(currently amended) A method of treatment of symptoms related to a reduction of the cognitive function of the brain in mammals disorders caused by the malfunction of the acetylcholine or muscarinic systems comprising the administration of a therapeutically effective amount of a compound as claimed in claim 1 to a subject in need thereof.

17. (new) A compound of the formula:



or a pharmaceutically acceptable salt thereof, wherein:

A is CH or nitrogen;

B is $-\text{CH}_2-$, $-\text{CHF}-$, $-\text{CF}_2-$, NR_4 or O, with the proviso that when A is N, B is $-\text{CH}_2-$, $-\text{CHF}-$ or $-\text{CF}_2-$;

G is oxygen or $=\text{N-CN}$,

R_1 is hydrogen or C_{1-6} alkyl;

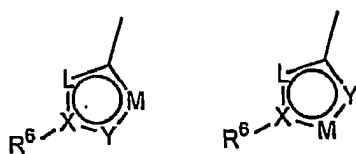
R_2 is hydrogen; C_{1-10} alkyl optionally substituted

with C_{1-6} alkoxy or halogen; aralkyl, a $-\text{CH}_2$ -heterocycle or a $-\text{CH}_2$ - C_5 cycloalkyl ring each of which may be optionally substituted with one or more of halo, hydroxyl, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-8} alkoxy, C_{1-6} haloalkoxy, C_{2-6} alkenyl, C_{2-6} haloalkenyl, C_{2-6} alkynyl or C_{2-6} haloalkynyl;

R_3 is a cyclic alkyl radical containing from 3-6 carbon atoms or a C_{1-6} alkyl;

R_4 is hydrogen or lower alkyl;

R_5 is a 5-membered unsaturated heterocyclic ring having one of the following structures:

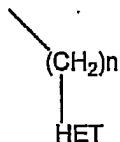


where L and M are independently O or N (or NH where the circumstances require) with the proviso that both of L and M cannot be O; Y is S, CH, O or N (or NH where the circumstances require); X is C or N; and

R_6 is lower alkyl; hydrogen; arylamino optionally substituted with one or more of halo, hydroxy, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{1-6} haloalkoxy, C_{2-6} alkenyl,

Application No. 10/581,833
Amdt. dated 14 October 2009
Reply to Office Action of 24 June 2009

C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl; aralkyl optionally substituted with one or more of halo, hydroxy, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy, C₁₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl; or a group of formula:



wherein n is an integer in the range from 1 to 4 and HET is a heterocyclic group optionally substituted with one or more of halo, hydroxy, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy, C₁₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl;

or R₅ may also be C₂-C₄-aralkyl, -CH₂-O-R₇ where R₇ is C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₂-C₄ aralkyl which groups may be optionally substituted with fluoro or hydroxy; and

R₈ is hydrogen or aryl (optionally substituted with one or more of halo, hydroxyl, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy, C₁₋₆ haloalkoxy, C₂₋₆ alkenyl, C₂₋₆ haloalkenyl, C₂₋₆ alkynyl or C₂₋₆ haloalkynyl);

with the proviso that when either R₃ or R₈ is not hydrogen, the other is hydrogen.